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Testing *ImmerseMe* with Chinese students: acquisition of foreign language forms and vocabulary in Spanish

Abstract: The use of video games in the foreign language classroom is becoming an emerging tendency. This paper aims at analysing how the serious video game *ImmerseMe* influences the learning of Spanish as a foreign language within a group of 22 Chinese students. This research was conducted through an experiment that included testing participants' progress (group 1) before and after completing a five-lesson plan using the aforementioned video game, this being compared with a group of 26 Chinese students (group 2). Based on the content of the selected lessons, the main purpose of this test was to determine the participants' initial level and then assess their progress considering the mistakes that they made regarding the word order structure, lexicon, grammar, spelling, and content. The results have shown that all the participants in group 1 progressed in the second test after completing the lessons through *ImmerseMe*, and their performances were generally better than those of group 2. In conclusion, it seems that the use of serious video games such as *ImmerseMe* can be a useful tool in the educational field of foreign language learning and teaching.

Keywords: *ImmerseMe*; language acquisition; language immersion; serious video games; vocabulary

1 Introduction

The use of video games in the educational sector seems to have bloomed since the decade of 2010 (Jabbari and Eslami 2019; Mayer 2019). Although the possibility of using video games for educational purposes has been discussed since the 1970s

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(Abt 1970; Gagnon 1985; Malone 1981), it appears that technology was not ready to be integrated into the classroom until the present decade (Maloney 2018; Zarrao-nandia et al. 2016). The development of the computer, with a user-friendly operating system such as Windows and the globalised access to the Internet were the starting point of the so-called 'Digital Revolution' in the late 20th century. Later on, computers and the Internet became mobile and operating systems were adapted to pocket-sized computing devices such as the *smartphone*. These advances made technology become individual and accessible to everyone and ready to be used everywhere (Zhang and Cristol 2019). Consequently, these technological advances have revolutionised society, including education as well. At present, the use of video games for learning purposes has increased considerably; and more educational companies are consequently designing content using this format, either as a complement to paper books or as stand-alone content (Díaz-Bravo 2019; Entertainment Software Association 2014; Newzoo 2017; Siwek 2014).

One of these brand-new video gamified resources is *ImmerseMe*, which will be regarded as the main focus of this research. This is a virtual reality-based game which aims at teaching foreign languages. Players interact with computerised subjects in 360° environments which represent real-life situations. As its name shows, the game focuses on providing learners with 360° virtual reality immersion and consequently makes the learning process closer to the player. In this video game, the player has to choose one of the given options on the screen in order to follow up the simulated conversation, and then read it aloud clearly so that the computer can recognise the utterance. Afterwards, the player continues with new parts of the dialogue until it finishes, and the main goal of the conversation is fulfilled. In addition, the degree of difficulty with this game can be selected beforehand as well as the topics, which cover both daily and professional situations. Another feature that this tool includes is a dashboard section that allows educators to monitor the progress of their students. Figure 1 shows captures of the simulator.
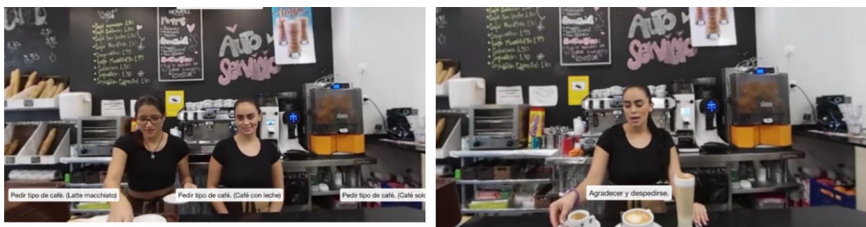

Figure 1: Captures of *ImmerseMe*.

As shown in Figure 1, the player must select a topic and a conversation, with specific language forms and vocabulary. Then, the player is introduced to the language forms that need to be used. Finally, the player uses the simulator following the instructions provided by the computer. In these cases, the player has a certain freedom to choose an option. In the second capture of Figure 1, the player is offered three different types of coffee and needs to choose one.

In the light of the previous literature, the term game could be defined as an organised recreational activity whose purpose is to reach specific goals (Montessori 1937). If we look back in history, we can note that games for educational purposes have been used since the beginning of humankind, and the act of playing is a human instinct that allows learning with certain degrees of stimulation (McGonigal 2011; Rath 1986). In this sense, games are characterised by an emotional component, which makes the learning process engaging (Ouariachi et al. 2019). According to Butler (2016), the emotional component is what connects the player with the content through some elements such as storytelling, narrative and challenge. In other words, the purpose of implementing games in the classroom is to motivate learners to make an effort in their tasks and consequently help them in their learning process and outcome (Dondlinger 2007; Gonzáz-Lloret 2017). To this purpose, Malone and Lepper (1987) divided motivation to attract learners' attention into two categories: individual and interpersonal. According to these authors, individual motivation involves students' emotions for challenge, control, curiosity, and fantasy, whereas learners' interpersonal motivation concerns cooperation, competence, and recognition. This idea seems to connect with the basis on how to motivate learners through gamified resources, including the use of video games for pedagogical purposes. In his experiment, Calvo-Ferrer (2017) found that students' learning outcome is not necessarily better because they play videogames, but the fact that they were engaged in learning while playing led them to continue practicing, and consequently learn with a high degree of motivation.

The benefits of learning by playing gave rise to the creation of the term serious games, which was initially coined by Abt (1970). This scholar explained that these types of games have "an explicit and carefully thought-out educational purpose and are not intended to be played primarily for amusement. This does not mean that serious games are not, or should not be, entertaining" (Abt 1987: 9). Among other researchers, some more recent definitions have been provided by Zyda (2005) and Sawyer (2007). The former researcher suggested that serious games are those that are played in accordance with specific rules and in order to fulfil educational objectives. The latter provided a similar definition, but he added a technological component, considering video games "a mental contest, played with a computer in accordance with specific rules, that uses entertainment to further government or

corporate training, education, health, public policy, and strategic communication objectives" (Zyda 2005: 26). Along this line, Susi et al. (2007) provided a description of the main characteristics of this type of game, in which they emphasised the importance of task solving in a context where communication should be natural. This idea on the benefits of tasks in the classroom was also supported by Cohen (2007) and Jarvis (2009), who suggested that task solving is fundamental, since it is associated with experimenting through the simulation of real-life actions. To this purpose, video games seem to be a suitable tool to promote learning as players solve tasks while playing (Ziegler 2016); therefore, the learning process becomes engaging and motivating (Simkova 2014; Vogel et al. 2006). In addition, video games in the classroom could currently be considered a novelty in most educational institutions, and this factor encourages students to raise their awareness towards the content and the tasks derived from it (Eshach 2007; Martí-Parreño et al. 2018).

Although these ideas seem to bring an innovating component into the education field, the use of serious video games in the classroom is not so different in comparison to other learning methods and approaches. In fact, it follows the same principles as other more traditional methods and approaches. In this sense, the three learning stages of input, process, and output identified by Stern (1983) can also be covered by video games. Although most video games cannot cover all three stages, there are some that cover each individual stage. Thus, they can be combined, or the missing stages can be performed with other electronic or no electronic resources in the classroom. These elements need to follow the order established by Stern (1983), i.e. the reception, processing, and production of the new information through visual and hearing senses, as well as oral and written skills.

The first element, input, concerns the integration of new information, and is used to start the learning process (Richards and Renandya 2002). The advantage of serious games at this stage is that the level of difficulty can usually be controlled; this connects with the idea of Krashen (1985), who suggested that learners need to cope with new challenging information at a slightly higher level to their own ($i + 1$: comprehensible input). The following stage concerns processing the input received, and involves practicing with drills, which are repetitive exercises that help interiorise new knowledge (Paulston 1970). In this case, the main focus of drills is to practice with the new target forms. Finally, Swain (1995) stated that students will be able to produce output when they can analyse different forms and choose the most appropriate one depending on the specific given context. Contrary to the drills, this stage focuses on tasks, which involve communication in natural and real contexts rather than focusing exclusively on forms. Nunan (1989: 10) defined tasks as "activities that can stand alone as a communicative act in its own right"; besides, learners should be able to comprehend, produce and manipulate

them while producing authentic language. In this case, the main focus of this type of exercise is placed on meaning rather than form, since the purpose is to promote the development of real communication while practicing the new knowledge (Nobuyoshi and Ellis 1993).

Considering these principles and ideas on how video games help process language learning following the IPO Model (Stern 1983), *ImmerseMe* should be classified as a simulator as well as a serious video game.[1] Whereas *ImmerseMe* seems to cover the input and process stages, it seems that no opportunities for output are provided. In this sense, the game introduces new language forms, and learners have to practice them repeatedly with computerised partners, which only offer a limited range of closed responses. Therefore, the type of exercises introduced in this game should be regarded as drills rather than tasks. In addition to these ideas, as previously explained, it is necessary to emphasise that *ImmerseMe* is a 360° VR interface. According to Papin (2018), taking inspiration from Grant et al. (2013), this fact seems to be beneficial to reduce anxiety in the learning process due to its immersive and real-life nature (Grant et al. 2013) as well as to improve communicative and cultural skills at the same time (Johnson and Valente 2009). Thus, *ImmerseMe* seems to be a suitable software to provide students with new language forms that can be processed in a virtual environment with a considerably lower degree of anxiety.

The aim of this research is to analyse how this serious video game influences the learning of Spanish as a foreign language among a group of Chinese students. To fulfil this purpose, an experiment was conducted with 22 students (group 1) of Spanish Language who used *ImmerseMe*, and another 26 students (group 2) who followed a traditional teaching plan. In both cases, the participants were initially tested to determine their linguistic knowledge in a specific context. Then they followed the lessons and did the activities, group 1 with the video game. Finally, after the completion of the lessons, they took a second test to assess their progress. Our hypothesis in this research was that the use of *ImmerseMe* as a stand-alone serious video game would help foreign language learners enhance their communicative competence, mainly with regard to vocabulary and specific language forms; they would perform better than group 2 due to their motivation to learn in an innovative playful environment. On the basis of these ideas, some research questions were introduced:

1. Is there a significant difference between the performances of groups 1 and 2 in terms of word order in their FL structures?
2. Is there a significant difference between the performances of groups 1 and 2 in terms of their lexicon and grammar in the FL?

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1 See the classification of video game genres introduced by Adams (2013).

3. Is there a significant difference between the performances of groups 1 and 2 in terms of their spelling achievement?
4. Is there a significant difference between the performances of groups 1 and 2 in terms of their understanding and expression in the FL and of their response with the appropriate information to questions and translations?

2 Materials and methods

2.1 Participants

This research was based on an experiment in which 48 Chinese participants living in Spain took part during the second term of the academic year 2018/2019 and the academic year 2019/2020. The experiment included 22 students (group 1) and 26 students (group 2) who were between 22 and 26 years of age. These on-campus students were taking a Master's degree at the Universitat Politècnica de València (Spain) and were invited to participate. The students' initial level was B1 according to the CEFR. It must be noted that some participants who initially enrolled for this experiment were discarded because their level was either higher or lower than B1. To assess their initial level, a placement test from *Instituto Cervantes* on vocabulary and language forms was used. Group 1 comprised students from the university during the academic year 2018/2019, whereas group 2 included students from the academic year 2019/2020. Both groups had the same profile and the experiment took place during the same period of the year, between February and March. As noted above, these students were practically of the same age and had arrived at the university in September; thus, the conditions of the students from both groups were similar.

2.2 Materials

Regarding the instruments and materials used, the *ImmerseMe* Company provided the necessary licenses to carry out this research: 22 for the participants and two for the researchers. The tests and final survey were designed with Google Forms and circulated via email. The tests were prepared by the researchers and based on the content studied using this software. In addition, the same content studied in the five lessons in *ImmerseMe* was adapted to a paper version for group 1. This version included input and activities to process, such as filling in the gaps and multiple choice. The tests were designed by the instructors and introduced forms in the same way as they were shown in the video game, and as in the lessons for group 2.

The pre-test and the post-test included different questions, but the degree of difficulty was the same since the same language functions were used in different situations, based on the five lessons. The tests included two exercises; the first required the student to use language forms studied in the lessons, for example ordering a loaf of bread. The second exercise focused on the translation of some language forms studied in the lessons from Chinese to Spanish. Each exercise contained five items. The tests were completed online, and lasted 25 minutes.

2.3 Method and procedure

The procedure of this research consisted in testing participants' initial Spanish language knowledge on five topics with a pre-test: bakery, backpackers, city services, shopping, and in the street. The level of these topics was 'advanced' according to the platform; in terms of CEFR, this level corresponds to B1. After the completion of the pre-test, the students were invited to complete the selected five lessons using the serious game *ImmerseMe* that corresponded to the five topics introduced in the pre-test. The students received no feedback after the completion of the pre-test to avoid giving additional knowledge. The time to complete the five-lesson plan was at their own pace for two weeks. These lessons included a dossier with the main language forms, which were focused on in the video game in the processing stage. On the other hand, group 2 received a paper dossier with an explanation of the language forms from each of the five units and some exercises to process the new knowledge (mainly filling gaps and multiple choice). Students were free to do the activities at their own pace for two weeks, as with group 1. Both groups received feedback and corrections after the completion of their activities. Group 1 received feedback from the videogame whereas the work from group 2 was checked individually by the teacher after the completion of each lesson.

After the completion of the five lessons, the participants took the post-test, which contained similar or equivalent forms as in the pre-test. Next, results from the two tests were compared in order to determine their progress. Both tests were corrected by the researchers and errors were classified into four categories: word order, lexicon-grammar, spelling, and content. This classification was adapted by the instructors from previous literature (Corder 1975; Dagneaux et al. 1998; Deorowicz and Ciura 2005; James 2013). To clarify this classification, word order refers to the sequential arrangement of words (Sharma 1999); grammar and lexicon concern the correct application of the foreign language rules and its vocabulary (Purpura 2013); spelling is the act of forming words correctly from individual letters (Hornby 2000); whereas content in this research is referred to as the response with the correct information to questions and appropriate translations. It was expected

that there would be no significant external inference of the target language during the time the participants were completing the course since the period was considerably short (two weeks) and the test was aimed at specific forms of the language in given contexts.

In addition, the participants also responded to a survey with the aim of receiving some feedback on their experience and grading their motivation and satisfaction towards the lessons and their activities, group 1 using *ImmerseMe* and group 2 using a traditional teaching plan in paper. This survey included six items on a Likert-scale statements with a rank of five values, each to measure their satisfaction.

3 Results

The following section shows the results obtained from the experiment. Table 1 illustrates the progress of our participants before and after completing the lessons. As it can be observed, the number of students who made mistakes in each of the selected areas was reduced after they fully completed the five-lesson plan using *ImmerseMe*.

The results also show that most of the mistakes concerned grammar and lexicon, which was also the area in which the students' progress was the lowest (15.79%). In the other areas, the progress was better; in the case of word order structuring the sentences, all the mistakes were corrected, whereas the progress regarding spelling and content was higher than 50%.

Table 1: Students with mistakes and their progress.

Group 1 (22)	WO. Structure	Lexicon- Grammar	Spelling	Content	Total
Test 1	31.82% (7)	86.36% (19)	40.91% (9)	40.91% (9)	50.00% (44)
Test 2	0.00% (0)	72.73% (16)	18.18% (4)	13.64% (3)	26.14% (23)
Progress %	**100% (−7)**	**15.79% (−3)**	**55.56% (−5)**	**66.67% (−6)**	**47.73% (−21)**
Group 2 (26)	**WO. Structure**	**Lexicon- Grammar**	**Spelling**	**Content**	**Total**
Test 1	38.46% (10)	84.62% (22)	34.62% (9)	46.15% (12)	50.96% (53)
Test 2	11.54% (3)	69.23% (18)	19.23% (5)	23.08% (6)	30.77% (32)
Progress %	**70.00% (−7)**	**18.18% (−4)**	**44.44% (−4)**	**50.00% (−6)**	**39.62% (−21)**
Difference % E-C	**+30.00**	**−2.39**	**+11.12**	**+16.67%**	**+8.11**

Table 2: Mean of mistakes per student and their progress.

Group 1 (22)	WO. Structure	Lexicon-Grammar	Spelling	Content	Total
Test 1	0.59 (13)	2.59 (57)	0.55 (12)	0.82 (18)	4.55 (100)
Test 2	0.00 (0)	1.36 (30)	0.18 (4)	0.14 (3)	1.68 (37)
Differ. T1–T2	0.59 (−13)	1.23 (−27)	0.37 (−8)	0.68 (−15)	2.87 (−63)
Progress %	**100%**	**47.37%**	**66.67%**	**83.33%**	**63.00%**
Group 2 (26)	**WO. Structure**	**Lexicon-Grammar**	**Spelling**	**Content**	**Total**
Test 1	0.69 (18)	2.46 (64)	0.50 (13)	0.85 (22)	4.50 (117)
Test 2	0.19 (5)	1.23 (32)	0.23 (6)	0.31 (8)	1.96 (51)
Differ. T1–T2	0.50 (−13)	1.23 (−32)	0.27 (−7)	0.54 (−14)	2.54 (−66)
Progress %	**72.22%**	**50.00%**	**53.85%**	**63.64%**	**56.41%**
Difference % *E − C*	**+27.78**	**−2.63**	**+12.82**	**+19.70**	**+6.59**

If these results are compared with those of group 2, it can be observed that the general progress within group 1 was higher (*E*: 47.73% − *C*: 39.62%). The results show that group 1 performed better in all the areas, except in lexicon-grammar, as shown in Tables 1 and 2.

The same results in Table 1 can be analysed from a different perspective. In this case, Table 2 introduces the mean of mistakes that each student made in the first and second test. As can be observed, the mean of mistakes on the word order structure was 0.59 per student in group 1, and all of the mistakes were solved after the completion of the lessons (100%). The students from group 2 reduced 72.22% of the mistakes in the post-test. Concerning the amount of lexical and grammatical mistakes, the participants achieved a mean of 2.59, and after the test, this amount was reduced to 1.36, resulting in a percent variation of 47.37%. In this instance, group 2 performed better and reduced their mistakes by 50.00%. In terms of spelling, the participants from group 1 made 66.67% fewer mistakes in the post-test after the lessons, achieving the mean of 0.55 before the treatment and 0.18 after it. Group 2 also improved in this area, but their progress was inferior to the other group (53.85%).

Regarding content, the mean of mistakes was reduced from 0.82 per student to 0.14 in group 1, the percent variation being 83.33%. The progress within group 2 was 63.64%. Finally, if this progress is considered from a general perspective, the mean of mistakes per student within group 1 was 4.55 before the test, which decreased to 1.68 after the test, thus reducing all the mistakes by 63.08%. On the other hand, group 2 made a mean of 4.50 mistakes per student in the pre-test, which was reduced to 1.96 in the post-test; the mistakes were reduced by 56.41%

within this group. If these percentages are compared, the difference between groups 1 and 2 is 6.59.

In addition to these results, other findings from this experiment should be considered. These are presented in Table 3. As can be observed, 68.18% of the students from group 1 made no word order structure mistakes in any test and 31.82% progressed; as for group 2, 61.54% made no mistakes and 30.77% improved their performance in the second test. Regarding grammar and lexicon, only 9.09% of the students from group 1 and 7.69% from group 2 made no mistakes in the tests, whereas 68.18 and 73.08% of the students from group 1 and group 2 respectively progressed in this sense. Concerning spelling, 50.00% of participants from both groups did not make mistakes in either of the tests, and 31.82 and 30.77% of students from groups 1 and 2 respectively progressed. Finally, it was observed that approximately 50% of students from both groups did not make any content mistakes, and roughly 40% of these participants progressed in the second test. Considering these results, most students from both groups progressed and reduced their number of mistakes in the second test. However, a few performed worse in one of the items of the test, and only one participant in each group performed worse in the second test.

Finally, concerning the opinion survey that was circulated among the students for feedback, results clearly show that students from group 1 were more satisfied than those from group 2. As can be observed, the mean satisfaction of students from group 1 using *ImmerseMe* was 4.38 out of 5, whereas group 2 satisfaction with their teaching plan was 3.20. Table 4 shows the results obtained.

Table 3: Summary of progress: 22 participants.

	T1 = T2 No mistakes		T1 < T2 Progressed		T1 = T2 Same mistakes		T1 > T2 More mistakes in T2	
	G1	G2	G1	G2	G1	G2	G1	G2
WO. Structure	68.18% (15)	61.54% (16)	31.82% (7)	30.77% (8)	0.00% (0)	7.64% (2)	0.00% (0)	0.00% (0)
Lexi.-Gram.	9.09% (2)	7.69% (2)	68.18% (15)	73.08% (19)	18.18% (4)	11.54% (3)	4.55% (1)	7.69% (2)
Spelling	50.00% (11)	50.00% (13)	31.82% (7)	30.77% (8)	9.09% (2)	11.54% (3)	9.09% (2)	7.69% (2)
Content	54.55% (12)	50.00% (13)	40.91% (9)	38.46% (11)	0.00% (0)	7.64% (2)	4.55% (1)	3.85% (1)
Total	**0.00%** **(0)**	**0.00%** **(0)**	**77.27%** **(17)**	**73.08%** **(19)**	**18.18%** **(4)**	**23.08%** **(6)**	**4.55%** **(1)**	**3.85%** **(1)**

Table 4: Students' feedback on their teaching plans.

	Group 1	Group 2
1. I have enhanced my language skills	4.18	3.27
2. I have enjoyed doing the activities	4.59	3.04
3. This teaching plan was innovative and attractive	4.90	2.69
4. I would like to continue learning with this plan	4.32	3.46
5. I would recommend it to other students	4.27	3.12
6. I would use this plan if I were a teacher	4.04	3.65
Mean	**4.38**	**3.20**

4 Discussion

After analysing the results, it seems that all the participants showed some evident progress in the second test after they had completed the assigned lessons, both group 1 with *ImmerseMe* and group 2 with a traditional teaching plan in paper. Based on our four research questions, it must also be acknowledged that their progress was more significant in some areas than in others. For example, word order structure problems were all solved in the second test in group 1, whereas a few students from group 2 were not able to avoid making mistakes in this area. In addition, the improvement in grammar and lexicon was also noticeable in both groups; this was the area in which students progressed the most. It was also the area in which students made more mistakes in the pre-test. In this case, group 2 performed better than group 1. As previously shown, progress in spelling and content was also satisfactory for both groups.

Despite these positive results, it appears that the participants had previously studied the same language in their daily lessons; however, both the application *ImmerseMe* with group 1 and the lesson plan for group 2 seem to have been an effective strategy to remind and make our participants aware of some key language forms that were targeted. As shown in our results, students who used *ImmerseMe* progressed more than group 2. From these results, it could be inferred that student motivation is a key factor in this progress. Most students from group 1 affirmed in the final survey that they were more satisfied when using this software, and that they would also like to continue learning with it. The novelty of interacting with computerised characters in 360° environments was perhaps an additional value in this teaching proposal. As commented by Eshach (2007), it seems that the idea of bringing novelty to the classroom can break the learning monotony and make students more motivated and consequently more focused on their tasks. Indeed, participants from group 2 were not as satisfied with the teaching plan as group 1;

this could make the difference between both groups. As suggested by Calvo-Ferrer (2017), it seems that the participants' motivation to play was what made students continue practicing, and consequently their performance in their final test was also better.

It is clear that the function of this simulator is to introduce new language forms and process them through exercises in 360° virtual reality contexts. Following the IPO model introduced by Stern (1983), *ImmerseMe* covers two learning stages: input and process. Thus, it seems that this serious video game is a useful resource with which to introduce new forms of language, either general or specific ones, such as those from the fields of medicine, banking, business, or engineering, among many others. However, we regret that this simulator does not offer any possibility to interact with other human users online; we believe that this function would enhance its quality and complete the learning process. Nevertheless, it must be acknowledged that this output stage could also be performed in class or by videoconference, where the teachers would monitor their learners' progress and assess their performances. Another aspect that leaves room for improvement is the inclusion of gamified resources within the simulator with the aim of increasing learners' engagement. Some of these resources could mean adding challenges and promoting competition among users as suggested by Malone and Lepper (1987) in their description of the characteristics of learners' motivation.

In brief, this research focused on analysing how the serious video game *ImmerseMe* has influenced the learning of Spanish as a foreign language among a group of Chinese students. This objective was based on our hypothesis that this serious video game would help foreign language learners improve their communicative competence. This hypothesis seems to be valid since results have shown some progress in the four target areas: word order structure, lexicon-grammar, spelling, and content.

5 Conclusion

It seems that the use of video games in the present digital era is a real possibility that must be considered by educators in any field and at any level. Our hypothesis was that students would enhance their communicative competence, mainly in vocabulary and specific language forms, by using a stand-alone serious video game, *ImmerseMe*.

Our research questions were addressed to test whether the use of a video game would help learners progress in their FL word order, lexicon and grammar, spelling, and in their FL understanding and expression to respond with the appropriate information to questions and translations. As our results have shown,

some progress was made in group 1; this implies that the use of video games in the foreign language classroom can be a positive resource. There are different hypotheses that could justify the reason for this progress: motivation, further reinforcement of their knowledge, or opportunities for additional practice, among others.

These ideas could be the basis for further research. We firmly believe that additional research on this topic is necessary, the group of subjects should be larger, and the time of exposure and control should be longer as well. The same research including these features would guarantee more reliable results and conclusions. In addition, it must also be acknowledged that further research on oral skills could also be carried out since commands are delivered orally; this fact could also concern some improvement in oral communication, including fluency and accuracy in the use of new language forms as well as pronunciation. There is no doubt that education has changed a great deal, and the idea that new digital resources have to be considered for its use in our continuously changing education system is an absolute truth.

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